

**Technical Work Group  
of the Imperial Valley Study Group  
Minutes of June 3, 2005 Meeting**

In attendance: David Barajas, Mark Etherton, IID; John Kyei, CA ISO; Robert Jackson, Dave Miller, SDG&E; Phillip Leung, Mohan Kondragunta, SCE; Dave Olsen, CEERT/CEC; Dale Stevens, MidAmerican Energy; Jose Santamaria, CFE. The meeting convened at 9:00 AM and adjourned at 2:30 PM. Minutes were recorded by Dave Olsen.

**Stability Analysis:** Mark Etherton reviewed the stability runs for the Heavy Summer and the Light Autumn cases, and the switch decks he/IID utilized in the analysis. As follow-up, Mark will write up a Worst Case Analysis, to identify the book-end worst cases. The runs looked at bus voltage and frequency only; if there is time, Mark may look at angular swing as well. As the longest line in the region, Palo Verde-Devers is worthy of special scrutiny. SCE suggested that a Devers Heavy Summer N-2 contingency should be looked at; SCE will send switch decks for this to IID and SDG&E.

**Post-Transient Analysis:** SDG&E will sponsor a post-transient study of the two IVSG base cases (HS/LA) and the final three alternative routings; it will fund Navigant to do the work. Robert Jackson circulated a study plan that will be used to guide this study. The TWG developed a list of the buses to monitor, for single contingencies and double contingencies. Any further comments on buses/contingencies to be included in the study are due to Robert **by June 8**. Navigant should have study results (but not a formal report) by our June 30 meeting.

**Overloads:** Mark Etherton will sort the lines in the pre-project cases and the three final alternative cases by area, and will send this to each Transmission Owner by June 10. Line overloads will be reported in amps. Each TO will identify mitigation for each overload in its area, in time for our TWG conference call on **June 14**.

**Phasing Proposal:** At the June 2 IVSG Steering Committee meeting, IID presented a plan for phasing the development of transmission in ~600 MW increments.

- Phase 1 of such an approach could upgrade the IID/SCE Coachella-Devers corridor (Path 42) to 1600 MW TTC. This would add closer to 1,000 MW of new transfer capacity.
- Phase 2 could upgrade the IID system from Midway-Highline-El Centro-Imperial Valley, increasing that routing to 1600 MW TTC.
- Phase 3 would add a new connection from Banister to a new San Felipe 500 kV substation, and upgrade the IID line from Banister to El Centro and Banister to Avenue 58/Coachella; this would bring total export capability to 2,000 MW.
- Phase 4 would upgrade the IID F line, from Midway to Buck, and the line from Highline-Pilot Knob, both to 230 kV, to tie into the WAPA system at those substations. WAPA's ten-year plan calls for upgrading its regional system to 230 kV, which will require IID to upgrade at those points. These upgrades in a possible Phase 4 will provide export capacity beyond 2,000 MW.

The Steering Committee concluded that IID's Phases 1 and 2 could be thought of as two alternatives for the first set of upgrades: Phase 1a could upgrade Path 42 (geothermal power connected to the IID system flowing north, to Devers); alternatively, Phase 1b could upgrade Midway-Highline-IV (geothermal power flowing south/west to the Imperial Valley substation and the proposed SDG&E 500 kV line from IV to San Felipe/San Diego county).

The Steering Committee agreed to consider this phasing approach further. To trigger the studies of the phasing alternatives, CalEnergy must get in the SCE applications queue and request the delivery of 600+MW to the ISO grid. Generators connecting directly to the ISO grid have to go through the ISO queue. But SCE would consider (geothermal) generation connecting to the IID system as a *transmission expansion* request rather than a generator interconnection request. This is outside of the ISO queue process; applicants don't lose their queue positions if they don't immediately proceed to approval and construction.

To determine the feasibility of Phase 1a, SCE will have to study deliverability to SDG&E at Serrano and/or other points. The optimal way to study the phasing would be through a joint study involving SDG&E and IID as well as SCE. This would enable the Phase 1b alternative to be studied alongside Phase 1a, to determine which should be pursued first, their approximate costs, and how they might be combined or the phasing altered to be most cost-effective. To trigger a joint study, CalEnergy would have to get into the SDG&E and the IID applications queues as well as the SCE queue. SCE, SDG&E and IID may be able to use the 2014 Heavy Summer and Light Autumn base cases developed by the IVSG (with minor modifications, e.g., to include the generators now in the queue) for this joint study. This could save time and cost. CalEnergy will seek management approval for the cost of such studies.

**Change in Study Alternatives:** SDG&E has now identified two preferred alternatives for its 500 kV line. These are: IV-San Diego North; and IV-San Diego Central-Serval. Given this, SDG&E requested that the TWG change its Alternative 3b (IV-SD North) to a new Alternative 2b (IV-SD Central-Serval). This new Alternative 2b would take existing Alternative 2 and extend the 500 kV line from SD Central to Serrano-Valley. This change would affect TWG work only going forward, for purposes of production simulations.

The group agreed that production simulations should be performed on these alternatives:

- Alternative 2: (IV-San Felipe-SD Central)
- Alternative 2a: same as Alternative 2, with an added 230 kV interconnection from Coachella Valley to a new Indian Hills substation on the Palo Verde Devers line; and
- Alternative 2b: same as Alternative 2, with the 500 kV line extended from SD Central to Serval.

**Production Simulations:** The ISO will run production simulations on these three alternatives, using ABB Market Simulator. This includes unit commitment logic, and John will need geothermal generator ramp rate information from CalEnergy. The ISO is working with SSG-WI to finalize a database for 2008; it should be approved in one-two weeks. The network model will have to be updated, e.g., to add Palo Verde-Devers 2. John will map out a schedule for doing the production simulations by our next conference call on June 14.

**TWG Final Report:** The group edited the draft outline of the TWG report on its work provided by Olsen on the agenda; Mark Etherton will use this to prepare a more detailed outline for discussion on our June 14 call. We will decide who will write each section of the final report on this call.

**Website Postings:** Given security considerations, can we post schematic representations of our transmission alternatives on the IVSG website? Should we remove substation names from such diagrams? Each TWG member will clarify with its management any guidelines for posting such information; Olsen will ask the Calif. Energy Commission for its guidance on this issue. We will report back on our June 14 call.

**Report to Full Study Group on June 30:** We will have 30 minutes to update the Study Group on our work. David Barajas will summarize the results of our power flow runs; Mark Etherton will describe our stability studies; and Robert Jackson will outline the post-transient results. We will finalize details of our June 30 presentation on our June 14 call.

**Next Meetings:**

**June 14,** 3:00-4:30 PM, phone conference call. Merrie Lamb of SDG&E will send the domestic US and Mexico call-in numbers. (This call was originally set for June 15).

**June 30,** 9:00-12:30 PM), at Sempra, 101 Ash St., San Diego, conference room 06-235. In-person meeting, before the **Full Study Group meeting 1:00-5:00 PM** that afternoon. We will review the post-transient study results, overload mitigations, the schedule for production simulations, and progress on our final report.

**July 21,** 2:00-4:00 PM, phone meeting. Merrie Lamb will send the call-in numbers.

Please make sure these dates are on your calendars. There will not be any meetings or calls the weeks of May 23, June 6 or June 20.